

## SNR BOOSTER FOR WDM SYSTEMS

### ABSTRACT

A non-linear optical loop mirror for processing optical signals comprises an optical fiber, a bi-directional amplifier, and a coupler. The optical fiber has a signal input and a signal output. At least a portion of the optical fiber includes a dispersion compensating fiber. At least a portion of the optical fiber forms a loop. The dispersion compensating fiber has an absolute magnitude of dispersion of at least 20 ps/nm-km for at least a portion of wavelengths in the optical signals. The bi-directional amplifier is coupled to the optical fiber. The coupler is coupled to a first portion of the optical fiber and a second portion of the optical fiber to form a fiber loop.